WHAT IS CLAIMED IS:

1. A magnetoresistance element comprising:

a free layer comprising a first ferromagnetic layer and a second ferromagnetic layer that face each other and whose magnetization directions are equal to each other and a nonmagnetic film intervening between the first and second ferromagnetic layers, the free layer being changeable in the magnetization directions on applying a magnetic field;

a first pinned layer comprising a third ferromagnetic layer that faces the free layer, the first pinned layer retaining a magnetization direction thereof on applying the magnetic field; and

a first nonmagnetic layer intervening between the free layer and the first pinned layer, the nonmagnetic film being made of a material selected from the group consisting of titanium, vanadium, zirconium, niobium, molybdenum, technetium, hafnium, tungsten, rhenium and alloys thereof.

2. The magnetoresistance element according to claim 1, wherein an average thickness of the nonmagnetic film falls within a range of 0.1 nm to 10 nm.

3. The magnetoresistance element according to claim 1, wherein the nonmagnetic film is made of a material selected from the group consisting of titanium, vanadium, zirconium, niobium, molybdenum,

technetium, hafnium, tungsten and alloys thereof.

4. The magnetoresistance element according to claim 1, further comprising:

a second pinned layer comprising a fourth ferromagnetic layer that faces the first pinned layer with the free layer interposed therebetween, the second pinned layer retaining a magnetization direction thereof on applying the magnetic field; and

a second nonmagnetic layer intervening between the free layer and the second pinned layer.

5. A magnetic memory comprising:

a word line;

a bit line intersecting the word line; and

a memory cell positioned in an intersection portion of the word and bit lines and including the magnetoresistance element according to claim 1.

6. A magnetic head comprising:

the magnetoresistance element according to claim 1; and

a support member supporting the magnetoresistance element.

7. A magnetoresistance element comprising:

a free layer comprising a first ferromagnetic layer and a second ferromagnetic layer that face each other and whose magnetization directions are equal to each other and a nonmagnetic film intervening between the first and second ferromagnetic layers, the free

layer being changeable in the magnetization directions on applying a magnetic field;

a first pinned layer comprising a third ferromagnetic layer that faces the free layer, the first pinned layer retaining a magnetization direction thereof on applying the magnetic field; and

a first nonmagnetic layer intervening between the free layer and the first pinned layer, a material of the nonmagnetic film being semiconductor or insulator.

8. The magnetoresistance element according to claim 7, wherein an average thickness of the nonmagnetic film falls within a range of 0.1 nm to 10 nm.

9. The magnetoresistance element according to claim 7, further comprising:

a second pinned layer comprising a forth ferromagnetic layer that faces the first pinned layer with the free layer interposed therebetween, the second pinned layer retaining a magnetization direction thereof on applying the magnetic field; and

a second nonmagnetic layer intervening between the free layer and the second pinned layer.

10. A magnetic memory comprising:

a word line;

a bit line intersecting the word line; and

a memory cell positioned in an intersection portion of the word and bit lines and including

the magnetoresistance element according to claim 7.

11. A magnetic head comprising:

the magnetoresistance element according to claim 7; and

a support member supporting the magnetoresistance element.

12. A magnetoresistance element comprising:

a free layer comprising a first ferromagnetic layer and a second ferromagnetic layer that face each other and whose magnetization directions are equal to each other and a nonmagnetic film intervening between the first and second ferromagnetic layers, the free layer being changeable in the magnetization directions on applying a magnetic field;

a first pinned layer comprising a third ferromagnetic layer that faces the free layer, the first pinned layer retaining a magnetization direction thereof on applying the magnetic field; and

a first nonmagnetic layer intervening between the free layer and the first pinned layer, the nonmagnetic film containing a material selected from the group consisting of titanium, vanadium, zirconium, niobium, molybdenum, technetium, hafnium, tungsten, rhenium, alloys thereof, semiconductors and insulators.

13. The magnetoresistance element according to claim 12, wherein an average thickness of the nonmagnetic film falls within a range of 0.1 nm to

10 nm.

14. The magnetoresistance element according to claim 12, wherein the nonmagnetic film contains a material selected from the group consisting of titanium, vanadium, zirconium, niobium, molybdenum, technetium, hafnium, tungsten, alloys thereof, semiconductors and insulators.

15. The magnetoresistance element according to claim 12, wherein the nonmagnetic film contains a material selected from the group consisting of titanium, vanadium, zirconium, niobium, molybdenum, technetium, hafnium, tungsten, rhenium and alloys thereof.

16. The magnetoresistance element according to claim 12, wherein the nonmagnetic film contains a semiconductor or an insulator.

17. The magnetoresistance element according to claim 12, further comprising:

a second pinned layer comprising a fourth ferromagnetic layer that faces the first pinned layer with the free layer interposed therebetween, the second pinned layer retaining a magnetization direction thereof on applying the magnetic field; and

a second nonmagnetic layer intervening between the free layer and the second pinned layer.

18. A magnetic memory comprising:

a word line;

a bit line intersecting the word line; and

a memory cell positioned in an intersection portion of the word and bit lines and including the magnetoresistance element according to claim 12.

19. A magnetic head comprising:

the magnetoresistance element according to claim 12; and

a support member supporting the magnetoresistance element.